

**U.S.DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

As lead Federal Agency pursuant to the National Environmental Policy Act of 1969

**U.S.DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

As a Cooperating Agency pursuant to 40 CFR Part 1501.6(a)(1)

***FINAL
ENVIRONMENTAL IMPACT STATEMENT***

**LOS ANGELES INTERNATIONAL AIRPORT
PROPOSED MASTER PLAN IMPROVEMENTS
Los Angeles, Los Angeles County, California**

This Final Environmental Impact Statement (EIS) assesses the potential environmental impacts of the proposed Los Angeles International Airport Master Plan under four so-called "build" alternatives, as well as the No Action Alternative. The common features proposed under the four "build" alternatives include relocation of runways; construction of new taxiways and runway extensions; construction of new terminal buildings, parking garages, and a consolidated rent-a-car facility; construction of a direct connection to I-405; construction of new and relocated air cargo and maintenance facilities and roads; construction of an automated people mover system; connectivity of the airport to the Metro Green Line; and land acquisition. In addition, two of the alternatives would include construction of an additional runway on either the north or south side of the airport.

Each of the various alternatives, including the No Action Alternative, has been assessed in detail and the potential impacts are disclosed within this document. This Final EIS has been prepared pursuant to the following public law requirements: Section 102(2)(c) of the National Environmental Policy Act of 1969 and Section 509(b)(5) of the Airport and Airway Improvement Act of 1962, as amended.

**VOLUME A
Appendices A-1, A-2, A-3, and A-4**

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Appendix
LAX Master Plan Final EIS

**A-3a. Coastal Zone Management Act (CZMA)
Consistency Determination by FAA**



U.S Department
of Transportation

Federal Aviation
Administration

Western-Pacific Region
Airports Division

Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

August 5, 2004

Mark Delaplaine
Federal Consistency Supervisor
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, California 94105

Dear Mr. Delaplaine:

**Los Angeles International Airport
Coastal Zone Consistency Finding**

Transmitted herewith is the Federal Aviation Administration's (FAA) Coastal Consistency Determination for the Relocation of Existing Navigational and Safety Aids at Los Angeles International Airport (LAX) in compliance with Section 930.34 et seq. of the National Oceanic and Atmospheric Administration Federal Consistency Regulations (Title 15 Code of Federal Regulations Part 930). The proposed relocation is necessary to accommodate relocation of runways described in Alternative D of the LAX Master Plan. The FAA has determined the relocation of the existing navigational aids and associated service roads at LAX is consistent, to the maximum extent practicable, with the California Coastal Management Program (CCMP), pursuant to the requirements of the Coastal Zone Management Act of 1972, as amended (CZMA) and the California Coastal Act of 1976, as amended.

The enclosed Coastal Consistency Determination (CCD) identifies the proposed project areas and activities that are subject to consistency determination. Our CCD discusses the federal guidance and regulatory provisions that provide the basis for the proposed action, and addresses the consistency of the FAA proposals with provisions of the California Coastal Act.

For the FAA to complete its Final Environmental Impact Statement for the LAX Master Plan in a timely manner, we respectfully request that this matter be placed on the Commission's September 2004 meeting agenda. We look forward to working with the California Coastal Commission and its staff on this important project.

Please call me at 310/725-3615 if you have any questions concerning this matter.

Sincerely,

David B. Kessler, AICP
Acting Supervisor, Planning Section/
Environmental Protection Specialist

Enclosures

**FEDERAL AVIATION ADMINISTRATION
LOS ANGELES INTERNATIONAL AIRPORT**

**CITY OF LOS ANGELES,
CALIFORNIA**

**COASTAL CONSISTENCY DETERMINATION
FOR
RELOCATION OF EXISTING NAVIGATIONAL AND SAFETY AIDS**

I. AUTHORITY

The Federal Aviation Administration (FAA) is submitting this Coastal Consistency Determination in compliance with Section 930.34 *et seq.* of the National Oceanic and Atmospheric Administration Federal Consistency Regulations (Title 15 Code of Federal Regulations Part 930).

II. DETERMINATION

In accordance with the Federal Coastal Zone Management Act of 1972, as amended, the FAA has determined that the relocation of existing navigational aids and associated service roads at Los Angeles International Airport (LAX) is consistent to the maximum extent practicable with the California Coastal Management Program (CCMP), pursuant to the requirements of the Coastal Zone Management Act of 1972, as amended, (CZMA) and the California Coastal Act of 1976, as amended (CCA).

III. PROJECT AREAS AND ACTIVITIES SUBJECT TO CONSISTENCY DETERMINATION

Overview

The planning for, and evaluation of, improvements proposed for Los Angeles International Airport (LAX) have been underway for approximately a decade. This work effort occurred within the context of formulating a Master Plan for the future of LAX, specifically at the year 2015. Three "build" alternatives - Alternatives A, B, and C - for the LAX Master Plan, and a "no build" alternative - the No Action/No Project Alternative - were addressed in a Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) that was published in January 2001. In response to the terrorist attacks that occurred on September 11, 2001, the newly elected Mayor of Los Angeles directed the Los Angeles Board of Airport Commissioners to develop a new fifth alternative for the LAX Master Plan that, consistent with public comment calling for a regional approach alternative, would accommodate passenger and cargo activity levels at LAX that would approximate those of the No Action/No Project Alternative, have fewer environmental impacts than the No Action/No Project Alternative and would be designed to enhance airport safety and security. That fifth alternative - Alternative D, the Enhanced Safety and Security Plan - was developed in consultation with LAWA staff and the FAA, and was addressed in the Supplement to the Draft EIS/EIR that was published in July 2003. Alternative D represents the Los Angeles World Airports' (LAWA's) preferred alternative, as presented in the Final EIR published in April 2004 for the proposed Master Plan Improvements. **Figure 1**, Existing Conditions

1997, shows the existing (1997) layout of LAX, and **Figure 2**, Alternative D - 2015 Enhanced Safety and Security Plan, presents the plan for LAX in the future (2015) under Alternative D.

A key aspect of the proposed Project is implementing various airfield improvements that would enhance the safety and operation of the airfield and meet the requirements of the FAA. As described in greater detail below, enhanced airfield safety would be achieved through airfield facility modifications that would mitigate the primary causes of runway incursions at LAX. In addition, airfield improvements would be made to enable the existing runway systems to better accommodate aircraft operations and meet FAA standards. The number of runways would remain the same at four. Two existing runways would be moved - one by approximately 50 feet and the other by approximately 340 feet, two runways would be lengthened - one by approximately 1,400 feet and the other by approximately 1,500 feet, and all runways would be further separated from one another to improve operational efficiency and safety. A more detailed description of the airfield improvements, as well as other aspects of the proposed Project is provided in Chapter 3, *Alternatives*, of the Final EIR.

Under the proposed Alternative D, all redesigned runways and taxiways would satisfy FAA airport design requirements and increase the operational efficiency of the airfield. The proposed improvements would increase runway and taxiway separations for larger aircraft by adding parallel taxiways between runways, and by increasing safety areas to meet current FAA standards. These changes would reduce controller workload and the associated risk of runway incursions, as well as reduce the risk of aircraft damage in the event of a runway overrun.

The vast majority of the improvements proposed for LAX under Alternative D would occur outside the coastal zone, as indicated on Figure 2. Currently, the only facilities within the portion of the coastal zone adjacent to LAX include Pershing Drive, existing navigational aids and associated service roads, and abandoned roadways that served residences formerly located within the Los Angeles/El Segundo Dunes. The FAA sets standards for airfield and terminal area lighting aids and navigational systems through its 150-series Advisory Circulars and through the review and approval of airport layout plans. Navigational aids are provided to facilitate aircraft identification, approach/landing, takeoff, and taxiing operations at night and in adverse weather.

Proposed Improvements to, and Reconfiguration of, Navigational Aids

In conjunction with the runway improvements proposed under Alternative D, modifications to the existing navigation aids would occur. **Figure 3**, Location of Proposed Navigational Aids - Alternative D, shows the locations of the existing, proposed, and relocated facilities, as presented in the Final EIR. The northernmost runway, Runway 24R/6L is proposed to be extended westerly by approximately 1,495 feet, which in turn would require that the existing navigational aids, specifically the instrument landing light system be shifted to the west as well. The type of landing light system to be utilized is referred to as the Approach Lighting System (Flashing)-2 (ALSF-2). **Figure 4**, Approach Lighting System (Flashing) Towers in the Los Angeles/El Segundo Dunes, provides photographs of this type of navigational aids. The proposed ALSF-2 lighting system would decrease the spacing between lights by

increasing the number of lights used to aid pilots in identifying the airport. The number of lights would increase from 15 to 23, and the existing spacing would decrease from 200 feet to 100 feet between each light. The lights would be directed up to approaching aircraft, and the extra lighting would be used during low visibility Santa Ana conditions (strong easterly winds) and at night when planes are approaching LAX from the west. During normal operations only one-half of the lights would be illuminated. To the extent possible, subject to FAA requirements and approval, the ALSF modifications associated with the extension of Runway 24R/6L would occur at, or adjacent to, the pad areas of the existing system to reduce disturbance impacts within the coastal zone. This would also be the case relative to using the access road adjacent to the existing land light system that currently serves Runway 24R/6L. In addition to the aforementioned land light system improvements, the existing Localizer Antenna (i.e., an antenna that emits an electronic signal used for precise instrument landings during inclement weather, such as periods of heavy fog common to coastal areas such as at LAX) for Runway 24R/6L would be relocated to position within the extension of land light system.

Under Alternative D, existing Runway 24L/6R would be relocated southward by approximately 340 feet and extended east by approximately 1,280 feet and west by approximately 135 feet. As a result of the southward relocation of Runway 24L/6R the alignment and locations of the existing runway light system serving the runway would also need to be shifted to the south. In addition, the existing Localizer Antenna for Runway 24L/6R would also need to be relocated to the south. Figure 3 indicates the locations of the existing and proposed/relocated navigational aids associated with Runway 24L/6R. As shown in Figure 3, much of the relocated navigational aid system would occur at, or near, existing roads, which would reduce potential disturbance impacts within the coastal zone.

As addressed at a planning level of analysis in the Final EIR, the proposed relocation of navigational aids associated with the improvements planned for Runways 24R/6L and 24L/6R would disturb a total of approximately 66,675 square feet (1.53 acres) of area within the coastal zone based on an assumed 9'x9' pad area for each landing light standard, a 15' service buffer around each pad area, and a 15'-wide service road along the alignment of landing light pads. As noted above, existing access roads would, by intention and design, be used to the feasible; however, such roads are approximately 10 feet wide, and would need to be widened to 15 feet. The impacts of such widening of existing roads, where necessary and appropriate, have been accounted for in calculating the areas of disturbance (the location of existing roads can be seen on the underlying existing conditions basemap in Figure 3, and are also shown on Figures 5 through 7 in the discussion below). The following provides a breakdown of surface disturbance associated with the navigational aids improvements and relocations, as addressed at a planning level of analysis in the Final EIR.

Impacts from Runway 6L (in Square Feet)			
Impact Area	Pad Area (including service area buffer)	Service Roads	Localizer Antennae
Los Angeles/EI Segundo Dunes	13,689 (9 pads)	12,151	5,980
Habitat Restoration Area (HRA)	3,042 (2 pads)	1,929	0
ESB ¹ Occupied Area within HRA	0	0	0
Total Impact	16,731	14,080	5,980

¹ EI Segundo blue butterfly

Impacts from Runway 6R (in Square Feet)			
Impact Area	Pad Area (including service area buffer)	Service Roads	Localizer Antennae
Los Angeles/EI Segundo Dunes *	1,521 (1 pad)	0	0
Habitat Restoration Area	12,168 sq. ft. (8 pads)	10,215	5,980
ESB Occupied Area within HRA	3,042 (2 pads)	1,575	5,980
Total Impact	13,689	10,215	5,980

* 3 of the 4 light standards are placed on existing paved areas in the Sand Dunes

Total Impacts from Navigational Aids (in Square Feet)			
	Total Impact to Los Angeles/EI Segundo Dunes	Habitat Restoration Area Impact	ESB Occupied Area within Habitat Restoration Area
Pad Areas	30,420	15,210	3,042
Service Roads	24,295	12,144	1,575
Localizer Antennae	11,960	5,980	5,980
Total Impact	66,675	33,334	10,597

Assumptions for Calculations:

- Pads areas for light standards (ALSF-2) are comprised of a 9 ft. X 9 ft. platform plus a 15 ft. buffer = 39 ft.² = 1,521 sq. ft.
- Localizer antennae measure 100 ft. X 16 ft. plus a 15 ft. buffer = 130 ft. X 46 ft. = 5,980 sq. ft.
- New service roads will have a width of 15 ft.
- Existing service roads have an average width of 10 ft. and will be widened by 5 ft.
- Pads proposed within existing roads are not considered to have an impact

Further design of the proposed improvement and relocation of the existing navigational aids was undertaken for the purpose of this Consistency Determination, providing preliminary engineering based on site conditions and typical designs for approach lighting systems and instrument landing systems such as those anticipated for the project. The results of this additional design effort are presented in **Figure 5**, Proposed Navigational Aids - NAVAID Site Plan, **Figure 6**, Proposed Navigational Aids - Runway 6L ALSF-2, **Figure 7**, Proposed Navigational Aids - Runway 6R ALSF-2, and **Figure 8**, Proposed Navigational Aids - Details. The most notable refinements that came out of the preliminary engineering include a reduction in the amount of surface area affected by the grading of, and buffer area for, the lighting system pad areas (i.e., original assumption of 39'x39' reduced to 32'x37'), reduction of the affected area associated with each localizer antennae (i.e., original assumption of 130'x46' reduced to 118'x33'), and the identification of ancillary facilities required to support the new system (i.e., ALSF equipment shelters and adjacent gravel parking area, and localizer duct banks [e.g., electrical wire conduits] between the localizer antennae/ALSF corridor and the ALSF equipment shelters). Based on the more detailed design, the impact areas were recalculated, and a comparison between the original planning estimates and the subsequent preliminary engineering estimates is provided in the table below. It should be noted that the improvement and relocation of the navigational aids are subject to further refinement in conjunction with final engineering, the selection/purchase of the new equipment, FAA plans and specifications check, implementation of the associated manufacturer's specification, and other requirements applicable at the time Runway 24L/6R is relocated, which is currently scheduled to occur in 2012-2013.

LAX Master Plan Alternative D Impacts Within Coastal Zone (in Square Feet)						
	Runway 6L		Runway 6R		TOTAL	
	Planning Estimate	Engineering Estimate	Planning Estimate	Engineering Estimate	Planning Estimate	Engineering Estimate
ALSF Landing Light Systems	16,731	13,024	13,689	14,208	30,420	27,232
Localizer Antennae	5,980	3,894	5,980	3,894	11,960	7,788
Access Roads	14,080	10,360	10,215	10,650	24,295	21,010
Ancillary Facilities*		2,136		2,136		4,272
TOTAL	36,791	29,414	29,884	30,888	66,675	60,302
* Ancillary Facilities were calculated separately for the preliminary engineering estimate, and include a gravel parking lot, equipment shelters, and duct banks.						

With respect to the treatment of areas where existing navigational aids are removed for relocation, all aboveground structural materials (i.e., lighting standards, supports, etc.) would be removed. Any gravel areas occurring adjacent to pad areas (i.e., for service vehicles) would be cleared of gravel and revegetated with native plant material. The

existing concrete pads/foundations are proposed to be left in-place, based primarily on the fact that the amount of disturbance associated with removing the sizeable foundations would be substantially greater than the net amount of area recovered for revegetation. Specifically, it is anticipated that, similar to the installation of new pads as described above, a work area of approximately 32'x37' would be required at each pad to be removed. The resultant amount of disturbance at each pad area, approximately 1,184 square feet, would far exceed the amount of former pad area, approximately 91 square feet, made available for revegetation. Based on the total number of existing pads that would need to be removed, which includes 23 pad areas, the total amount of surface disturbance would be approximately 27,232 square feet, while the total net amount of pad area made available for revegetation would only be approximately 1,863 square feet. Additionally, approximately 2.5 cubic yards of native soils would be required as backfill for each foundation removed, and approximately 110 cubic yards of such fill would be required for each localizer pad removed, plus another 30 cubic yards of such backfill associated with the removal of the MTI radar reflector. The total amount of backfill associated with removal of foundations for the existing improvements taken out of service is estimated to be approximately 292 cubic yards. The costs for, as well as the environmental implications (i.e., dust and air pollutant emissions, interim loss of existing native vegetation that would be impacted by excavation activities, etc.) associated with, the work required to remove the existing foundations would far exceed the environmental benefits associated with recovering 1,863 square feet (net) of revegetation area; hence, such removal of existing foundations is not considered to be practicable. This is especially true in light of the fact that over 54,000 square feet (i.e., 1.25 acres) is currently proposed for revegetation in the dunes area as mitigation for the impacts of the navigational aids improvements and relocation. As described in greater detail below, the revegetation plan proposed for the disturbance of habitat area within the dunes would adequately mitigate the project-related impacts. FAA would be responsible for ensuring the completion of the proposed revegetation program in accordance with the requirements of the Biological Opinion issued by the U.S. Fish and Wildlife Service for the proposed Project. LAWA would take the lead in implementing the detailed revegetation.

Basis and Requirements for Navigational Aids Improvements

Background

As described in Section 4.14, Coastal Zone Management and Coastal Barriers, of the LAX Master Plan Final EIR, navigational aids are provided to facilitate aircraft identification, approach/landing, takeoff, and taxiing operations at night and in adverse weather. Navigational aids (NAVAIDs) and Instrument Landing System (ILS) components are currently located in the coastal zone and the Los Angeles/El Segundo Dunes, which is considered an Environmentally Sensitive Habitat Area. Through FAA's Advisory Circular 150/5300-13, Airport Design, FAA Order 6820.2A, Visual Guidance Lighting Systems, and International Civil Aviation Organizations (ICAO) Annex 14, Volume 1, Aerodromes Design and Operations, placement of NAVAID and ILS components is governed by the FAA (additional discussion regarding these requirements is provided later in this section).

According to Chapter 3 of the Draft LAX Master Plan, the existing approach lighting systems for LAX's runways provide high lighting intensity for all four west and east flow runways. The approach lighting system on the principal west flow runways, 24R and 25L, is ALSF-2,

which is an advanced, high intensity lighting system. All runways, with the exception of 24L/6R, have runway centerline lights. Runways 24R and 25L, the primary arrival runways in west flow, and 7L, one of two primary arrival runways in east flow, also have touch down zone lighting. All runways at LAX also use a precision approach system called the Instrument Landing System (ILS). The ILS's electronic components consist of radio transmitters that guide the aircrafts' alignment with the runway (localizer), descent to the runway (glide slope), and distance from the runway (marker beacon).

Currently, Runway 6R, the runway where proposed NAVAID and ILS realignment would occur within the Los Angeles/El Segundo Dunes and the coastal zone, is equipped with a Category-I ILS and a Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR). The Category-I ILS provides electronic vertical and horizontal guidance with cloud ceiling and visibility approach minimums as low as 200 feet above Runway 6R's touchdown zone elevation and 1,800 feet visibility as reported by Runway Visual Range equipment (RVR). The MASLR ALS is an integral part of the Category-I ILS. When the MASLR is inoperative, the horizontal RVR visibility minimums increase to 4,000 feet. For safety considerations when these higher visibility minimums are in effect, the runway may not be available for landing during meteorological conditions having periods of reduced visibility. Periodic meteorological conditions at LAX during certain times of the year mandates a better.

Basis for Runway Improvements That Pertains to Need for Navigational Aids Improvements

Proposed improvements in the LAX Master Plan project are intended to achieve three primary objectives. These objectives are:

- To respond to local and regional demand for air transportation during the period of 2000 to 2015, taking into consideration the amount, type, location, and timing of such demand;
- To ensure that new investments in airport capacity are efficient and cost-effective, maximizing the return on existing infrastructure capital; and
- To sustain and advance the international trade component of the regional economy and the international commercial gateway role of the City of Los Angeles.

Current facilities at LAX make achieving the above objectives difficult. According to the LAX Master Plan EIS/EIR, the number and configuration of the existing four runways are inadequate to serve current and projected demand. Only one of the four runways (Runway 25R on the south airfield) is sufficiently long to serve the largest aircraft when fully loaded during adverse weather conditions (hot days with little wind). Aircraft departing from gates in the north airfield often need to use Runway 25R and endure long taxi distance with significant airfield congestion along the way. The difference in runway lengths between the north and south airfield complexes creates an imbalance in operations by preventing air traffic from being evenly distributed.

The north pair of runways (Runways 24L/6R and 24R/6L) has a separation distance of 700 feet between the two runways, and the south pair of runways (Runways 25L/7R and 25R/7L) has a runway separation distance of 750 feet. These runway separations do not meet current FAA design standards so, to operate safely, FAA requires that each pair be operated dependently, with greater aircraft separations and hold times to allow safety margins for weather and wake turbulence. This dependent operation reduces the number of planes that can use the runways at any given time and thus limits the airfield capacity. The runways are currently too closely spaced to allow center taxiways so aircraft can clear the runways sooner. Therefore, following aircraft are prohibited from landing at shorter intervals, and airfield congestion and risk of runway incursions increases. A runway incursion is defined by the FAA as any occurrence in the airport runway environment involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in a loss of required separation with an aircraft taking off, intending to take off, landing, or intending to land.

The FAA provides standards for runway, taxiway, and taxilane design, including length, width, separation, radius of turns, layout, and pavement material composition. These standards are published in FAA Advisory Circular 150/5300-13, Airport Design, and are intended to provide for a high degree of safety in any setting. For the most part, the current design and operation of LAX are responsive to FAA Airport Design Standards. However, the size of today's larger aircraft has resulted in the need to employ some special procedures for such aircraft to operate safely on the ground in areas that were originally designed for smaller aircraft.

Airplanes operating at LAX today are much larger than the airplanes in service at the time of its current design. The existing airfield at LAX was originally designed to serve the first commercial passenger jet aircraft, such as the Boeing 707 and Douglas DC-8. The wingspans of these aircraft are 131 feet and 143 feet, respectively. In its role as an international gateway, LAX became one of the first airports served by the original Boeing 747 and its current successor, the 747-400. The wingspans of these aircraft range from 195 to 231 feet. Larger aircraft, with wingspans ranging between 223 and 232 feet, also occasionally use LAX. Thus, the current runway separations do not allow the two pairs of parallel runways to operate independently from one another.

The taxiway system, another key component to airfield operations and a factor in determining airfield safety and efficiency, provides the link between runways and the terminal gates. At busy airports, the airport throughput capacity, to a large degree, is a function of how efficiently the taxiway system permits the flow of aircraft movement between the runways and the terminal gates. Two critical operational factors must be considered in determining taxiway system requirements: aircraft size and the level of aircraft demand throughout the day.

As discussed in Chapter 3 of the Draft LAX Master Plan, as airport activity increases, taxilane and taxiway congestion will worsen. Based on the design of the existing taxiway system, when departure queues occupy the outer taxiway in the terminal area, the flow to and from concourses on the north and south complexes is limited to a single taxiway. In addition, single cul-de-sac taxilanes between adjacent terminals limit flow to a single direction at all times. Aircraft that push-back to the inner taxiway block other aircraft

traveling along the taxiway. These design and operational conditions cause congestion, especially during peak periods on the south complex, when arrivals and departures are taxiing to and from their gates simultaneously.

The existing taxiway system at LAX can accommodate FAA Aircraft Design Group V, with some restrictions. Design Group V includes aircraft with a wingspan up to 213 feet and includes the Boeing 747-400, the largest aircraft currently operating at the airport. However, the following areas are specifically restricted from certain operations or certain simultaneous operations, as noted.

- Impaired wing clearance exists on Taxiway B between Taxiways C-6 and C-5 when Taxiway C is occupied (applies to all commercial jet aircraft). Taxiways C-1, A-2, A-4, Taxiways C-6, C-7, C-8, C-9 north of Taxiway C (between Terminals 4, 5, 6, 7 and 8) and Taxiway D between Taxiways D-7 and D-8 will not accommodate Boeing 747 or larger (Design Group V) aircraft.
- The inner taxiway above Terminal 1 has an additional restriction in that only Boeing 737 aircraft or smaller can be accommodated.
- There is insufficient clearance between Boeing 747-400 or larger aircraft on Taxiway C between Taxiways C-6 and C-5 and vehicles on the adjacent service roads.
- According to "Airport Design Advisory Circular 150/5300-13 (September 29, 1989) the standard runway centerline to parallel taxiway centerline separation distance is 400 feet for Design Group V. The separation from Taxiway B to Runway 25R is 350 feet and therefore does not meet Design Group V standards. However, with a modification of standards, 350 feet provides an acceptable level of safety for Design Group V aircraft except under certain weather conditions for Boeing 747 aircraft.
- Taxiway C has insufficient clearance to Taxiway B in dual taxi operations east of Terminal 8.
- The taxiways between Terminals 2 and 3, 4 and 5, 5 and 6, 6 and 7, and 7 and 8 do not meet Design Group III standards, although aircraft larger than Group III currently use some of these taxiways. In addition, the Terminal 1 taxiway after gate 9 is restricted to Boeing 737 aircraft or smaller, affecting gates 1, 3, 5 and 7.
- All Boeing 747 or larger aircraft eastbound on Taxiway C are prohibited from transiting to Taxiway B via Taxiway C-9.
- Taxiway D between Taxiways D-7 and D-8 is restricted to Boeing 767 or smaller aircraft.

As activity increases at LAX and a greater proportion of the fleet becomes Design Group V aircraft, the potential for taxiway congestion will increase due to these taxiway and taxiway restrictions. Heavy aircraft are expected to make up over 30 percent of operations in the

2015 design day schedule and over 40 percent of operations in the peak hour in 2015. Future design of the taxiway/taxilane system and terminal area can eliminate these restrictions. Based on analysis conducted during preparation of the LAX Master Plan, as outlined in Chapter 3, placing parallel taxiways between Runways 24R and 24L and Runways 25R and 25L is recommended to allow aircraft to stop and queue between runways.

Another consideration incorporated into the design of the taxiway system proposed under Alternative D is minimizing risks associated with runway incursions. In June 2002, FAA published a study entitled, "FAA Runway Safety Report: Runway Incursion Trends at Towered Airports in the United States – CY 1998-CY 2001." This report identified a total of 1,460 runway incursions out of 268 million airport operations in the U.S. that resulted in three collision and four fatalities over the four years studied. LAX experienced 38 total runway incursions during the period of the FAA study and had an average rate of occurrence of 1.24 incursions per 100,000 operations. Annual runway incursions at LAX totaled 12, 10, 8 and 8, respectively, for the years of 1998 through 2001. The annual rates of runway incursions for the same period marked 1.55, 1.28, 1.02 and 1.08 per 100,000 operations, respectively.

In July 2003, the FAA published the updated Runway Safety Report, which, unlike the previous version, compiled the data on a fiscal-year basis. This FAA Runway Safety Report reflects the runway incursion trends for fiscal years 1999 through 2002. The report indicates that the annual runway incursions at LAX totaled 9, 10, 9 and 6, respectively, over the four years studied. The rate of runway incursions at LAX for the same period marked 1.17, 1.28, 1.15 and 0.94 per 100,000 operations, respectively. It is important to note that the discrepancies in the annual runway incursion figures between the 2003 report and the 2002 report resulted because two different measurements were used in compiling data (i.e., fiscal year vs. calendar year).

For comparison purposes, annual incursion rates (per 100,000 operations), over the same five-year period for the Atlanta Hartsfield, Dallas Fort Worth, and Phoenix Sky Harbor Airports are indicated below:

Annual Incursion Rates Per 100,000 Operations				
	Los Angeles International (LAX)	Atlanta Hartsfield (ATL)	Dallas Ft. Worth (DFW)	Phoenix Sky Harbor (PHX)
1998	1.55	0.24	0.54	1.32
1999	1.17-1.28 ⁽¹⁾	0.66	0.81	0.53
2000	1.02-1.28 ⁽¹⁾	0.33	0.35	0.94
2001	1.08-1.15 ⁽¹⁾	0	0.75	1.65
2002	0.94	0.45	0	1.04

Note: (1) Range includes both calendar-year and fiscal-year data from the three-year period common to both reports references above.

Of these three airports, ATL is the most similar to LAX in terms of operational characteristics, including runway layout and the volume of annual operations. During the same period of time, LAX had four times the average rate of occurrence of runway

incursions than ATL, although LAX had approximately 20 percent fewer operations than ATL. LAX ranked first throughout the United States as the airport that had the greatest number of runway incursions during the four-year period (CY1998-CY2001) a total of 38 incursions. LAX was followed by North Las Vegas Airport with 32 incursions, and St. Louis-Lambert International with 31 incursions.

FAA also classifies runway incursions by their relative severity. The highest severity is given to an incursion in which extreme action is needed to avoid a collision or if a collision occurs. Five of the 38 runway incursions at LAX during the period of the 2002 FAA report were in this category; none of the five resulted in a collision.

One of FAA's goals is to raise awareness of runway incursions, identify solutions, and implement strategies to reduce their severity, frequency, and the risk of a runway collision. Airport surface radar technology and airport infrastructure implementation at key airports like LAX are some of the strategies identified by FAA to help solve the problem. LAWA has already implemented improvements to airfield lighting, taxiway marking, runway signage, and has sponsored on-going seminars on airfield familiarization with airport users. However, more improvement is needed.

Because FAA airport design standards have changed over time, certain features of the existing airfield do not meet current standards. These conditions are documented under Federal Aviation Regulations Part 139, available through LAWA. While these conditions do not create an unsafe airfield environment, they do add to airfield congestion as operations increase by imposing slower taxi speeds, which result in an increase in air pollution and aircraft delay. Improvements to runways and terminals at LAX would increase taxiway separations to meet current FAA design standards, as explained in FAA Advisory Circular 150/5300-13, Airport Design. Without the improvements to LAX, airfield safety would not be enhanced, and efficiency of the airfield would not be increased.

Federal Regulations Governing Runway and Taxiway Separations

To protect human health and welfare from the risk of incursions and aircraft incidents and accidents, the FAA has established extensive safety regulations governing the operation of aircraft as well as the design of airports. Current design standards regarding the placement, alignment and configuration of Approach Lighting System (ALS) is prescribed in the FAA Advisory Circular 150/5300-13, Airport Design, Paragraph 605, FAA Order 6850.2A, Change 1, Visual Guidance Lighting Systems and International Civil Aviation Organization's (ICAO) Annex 14, Aerodromes, Volume 1, Aerodromes Design and Operations, paragraph 5.2.3.10. All FAA and ICAO references indicate that the ALS shall be aligned on and about the extended runway centerline.

Based on current FAA and ICAO design standards, the ALS shall be aligned with the extended runway centerline. There are no published guidelines or allowances for modifications to these design standards.

As discussed in Section 4.24.3, Safety in the Final EIS/EIR, the requirements included in the Airport Design Standards are based on the requirements for safe aircraft takeoff, landing, and ground movement. These requirements have evolved as experience and

research have increased FAA's understanding of what is necessary to enhance aviation safety. FAA Airport Design Standards include safety compatibility criteria to which airports must conform. The basic objective of safety compatibility criteria is to minimize the risk associated with potential aircraft accidents. In addition to designation of runway safety areas, FAA provides standards for runway, taxiway, and taxilane design, including length, width, separation, radius of turns, layout, and pavement material composition.

LAX was built prior to the establishment of the FAA's current design standards for airports serving large commercial jets. For this reason, not all of the safety areas and safety zones surrounding the four LAX runways universally meet today's recommended dimensions for new airport development.

FAA has established a mechanism for allowing existing airports to continue operating unimpeded through the declaration of safe aircraft operating parameters known as "declared distances." Guidance on the application of this methodology is contained in FAA Advisory Circular 150/5300-13, Airport Design. Appendix 14 of this Advisory Circular states, "The use of declared distances for airport design shall be limited to cases of existing constrained airports where it is impracticable to provide the runway safety area (RSA), the runway object free area (ROFA), or the runway protection zone (RPZ) in accordance with the design standards in Chapters 2 and 3 [of Advisory Circular 150/5300-13]."

LAX continues to safely operate using these declared distances. However, implementation of Alternative D would allow LAX to meet the current FAA design standards recommended for a safe and efficient airfield serving large commercial jets.

Proposed Alternative D Configuration

Under Alternative D, the existing runways would be upgraded and relocated; no new runways would be added. Alternative D would maintain the existing four-runway system with modifications to the two north and south airfield runways. Taxiways would be designed to accommodate the Boeing 747-400 as the design aircraft (Group V) with operational and modified Group VI solutions for the operation of anticipated limited numbers of the New Large Aircraft (NLA). In addition, all existing runway ends would be redesigned to have Runway Safety Areas (RSAs) that meet current FAA standards of 1,000 feet long by 500 feet wide.

As discussed in Section 4.24.3, Safety of the EIS/EIR, LAX was built prior to the establishment of the FAA's current design standards for airports serving large commercial jets. For this reason, not all of the safety areas and safety zones surrounding the four LAX runways universally meet today's recommended dimensions for new airport development.

Under Alternative D, in the north airfield, Runway 6L/24R would have a physical pavement length of 10,420 feet. The west end of the runway would have a 1,000-foot displaced threshold in order to provide the recommended 1,000-foot Runway Safety Area (RSA). A 500-foot clearway would extend off of the west end of the runway, increasing Take-Off Distance Available (TODA) for Runway 24R, while a 1,000-foot clearway would extend from the east end, increasing TODA for aircraft departing Runway 6L.

Also in the north airfield, Runway 6R/24L would have a physical pavement length of 11,700 feet. Both runway ends would have displaced thresholds of 1,000 feet to accommodate the recommended 1,000-foot RSA. A 300-foot clearway would extend from the west end of the runway increasing TODA for Runway 24L to 12,000 feet.

Under Alternative D, in the south airfield, Runway 7L/25R would have a physical pavement length of 12,091 feet. Runway 7L/25R is the only runway at LAX that would not be modified under Alternative D. The west end of the runway would have a displaced threshold of 957 feet. The Runway 25R arrival threshold displacement would allow the runway's approach path to clear an existing air freight building. A 1,000-foot clearway would be extended from the west end of the runway allowing for increased TODA for westbound departures from the runway.

Also in the south airfield, Runway 7R/25L would have a physical pavement length of 11,096 feet. Runway 7R/25L would not have displaced thresholds at either end. A 1,000-foot clearway would be identified at the west end of the runway allowing increased TODA for westbound departures from the runway.

As described in the LAX Master Plan Final EIR's Topical Response TR-SAF-1, Aviation Safety, under Alternative D, all modified runways would satisfy FAA airport design standards and increase the operational efficiency of the airfield. The proposed improvements described in Chapter 3, Alternatives, of the EIS/EIR would increase runway and taxiway separations for larger aircraft by adding parallel taxiways between runways, and by increasing safety areas to meet current FAA standards. These changes would reduce air traffic controller workload and the associated risk of runway incursions, as well as reduce the risk of aircraft damage in the event of a runway overrun.

The airfield modifications proposed under Alternative D present a physical solution that would reduce the risk of runway incursions through the elimination of the existing high-speed taxiway exits directly linking parallel runways at LAX. The existing airfield requires landing aircraft to exit the outboard runways onto high-speed taxiways that provide an unimpeded route to a neighboring parallel runway on which simultaneous aircraft departures are occurring. The existing airfield has four full-length taxiways providing east-west routes for aircraft to maneuver on the airfield, none of which are between either pair of runways. Two new parallel taxiways, one between each pair of parallel runways, would be constructed under Alternative D.

In addition to the proposed parallel taxiway between each pair of runways, the existing Taxiway D, which is located north of existing Terminals 1, 2 and 3, would be extended to the west boundary of the airfield increasing available east-west taxi routes to taxiing aircraft. The airfield improvements would increase the number of available east-west taxi routes at LAX from four to at least seven. Each improved or proposed taxiway would be constructed to meet current FAA airfield design standards for wide-body aircraft, thus enhancing access to contact gates designed specifically for wide-body aircraft and eliminating the need to bus passengers across the airfield to remote aircraft hardstands for boarding.

Instrumentation, lighting and other navigational aids assist pilots in maneuvering aircraft with high levels of safety and efficiency under various weather conditions. The most critical point

of the approach to landing comes when the aircraft breaks through the overcast and the pilot must change from instrument to visual conditions. Sometimes only a few seconds are available for the pilot to make the transition and complete the landing. During a landing operation, pilots must control and coordinate six degrees of freedom and interpret visual translation information regarding the aircraft's alignment, height, and distance; rotation information regarding pitch, yaw and roll and information concerning the rate of descent and the rate of closure with the approach end of the runway.

The ALS is a standard configuration of aeronautical ground lights in the approach area to the runway that provides the basic means to transition from instrument flight to visual flight for landing. Operational requirements dictate the sophistication and configuration of the approach light system for a particular runway. As part of a precision instrument runway such as Runway 6R, the ALS is a configuration of signal lights starting at the landing threshold and extending into the approach area along the extended runway centerline to a distance of 2,400 feet and includes sequenced flashing lights which appear to the pilot as a ball of light traveling towards the runway at high speed.

Navigational aid and instrument land system placement is governed by the FAA through Advisory Circular 150/5300-13, Airport Design, FAA Order 6820.2A, Visual Guidance Lighting Systems, and ICAO Annex 14, Volume 1, Aerodromes Design and Operations. Based on the proposed reconfiguration of runways and taxiways under Alternative D of the LAX Master Plan, to maintain airfield and aircraft safety, associated NAVAIDS and ILS components would need to be realigned pursuant to the mandates contained in FAA's Advisory Circular and Executive Orders.

As discussed above and in Chapter 3 of the LAX Master Plan and Section 4.14, Coastal Zone Management and Coastal Barriers of the LAX Master Plan EIS/EIR, FAA's Advisory Circular 150/5300-13, Airport Design, FAA Order 6820.2A, Visual Guidance Lighting Systems, and ICAO Annex 14, Volume 1, Aerodromes Design and Operations, govern the placement of NAVAID and ILS components relative to runway centerlines.

Alternative D would require changes to navigation aids for Runway 6R within the coastal zone and the Los Angeles/EI Segundo Dunes. As part of a planned upgrade of the Runway 6R ILS to Category-II capabilities, the existing MALSR will be upgraded to a High-Intensity ALS with Sequenced Flashers (ALSF-2). The primary differences between the MALSR and ALSF-2 are the number and separation of lights situated along the approach path to the runway end. Both systems extend 2,400 feet beyond the landing threshold and are centered symmetrically about the extended runway centerline.

The Category-II ILS provides electronic vertical and horizontal guidance with cloud ceiling and visibility approach minimums as low as 100 feet above the runway touchdown zone elevation and 1,200 feet RVR. The ALSF-2 is used exclusively for Category-II/III ILS Standard Instrument Approach procedure (SIAP) operations to align the aircraft with the centerline of the runway and to establish vertical orientation. When the ALSF-2 ALS is inoperative, ILS Category-II/III procedures are not permitted therefore making the runway unavailable.

IV. CONSISTENCY OF FAA PROPOSALS WITH PROVISIONS OF THE CALIFORNIA COASTAL ACT

This portion of the federal consistency determination analyzes consistency between policy sections of the California Coastal Act (Division 20, California Public Resources Code) and FAA proposals and actions at LAX included within the California Coastal Zone boundary. Policies not applicable to FAA's proposal to relocate existing navigational and safety aids are listed first. Policies determined to be more relevant to the proposed Project are listed next, and are accompanied by discussion and analysis related to the subject issue. Also provided is a summary of public comments received during the public review periods for the LAX Master Plan Improvements Draft EIS/EIR and the Supplement to the Draft EIS/EIR that relate to such policies, as well as a summary of the written responses provided to such comments.

A. POLICIES UNDER THE CALIFORNIA COASTAL ACT THAT ARE NOT APPLICABLE TO, OR AFFECTED BY, THE LAWA PROPOSAL

Article 2 (Public Access):

- §30210 Posting of access
- §30211 Development shall not interfere with access;
- §30212 Access from new projects
- §30212.5 Distribution of public facilities;
- §30213 Encouragement of lower cost visitor and recreational facilities;
- §30214 Implementation of public access policies; legislative intent;

Relocation of the existing navigational aids would occur within an area owned by LAX that lies within the coastal zone. This area is, and will continue to be, secured from public access due to airport safety and national security needs. Coastal access is, and would continue to be, allowed on the public roads outside of the secured area. Maximum public access to the coast would be maintained consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse. Development activities related to the relocation of existing navigational aids would not interfere with public access to the sea nor affect lower cost visitor and recreational facilities.

Article 3 (Recreation)

- §30220 Protection of unique water-oriented activities;
- §30221 Protection for recreational use and development of oceanfront land;
- §30222 Priority of development purposes of private lands;

- *§30222.5 Oceanfront lands; aquaculture facilities; priority of oceanfront lands suitable for aquaculture;*
- *§30223 Reservation of upland areas;*
- *§30224 Encouragement of recreational boating use;*

Based on the airport safety and national security requirements for the navigational aids, as mandated by FAA, activities associated with relocating existing navigational aids within the coastal zone do not pertain to coastal recreation uses and activities. LAX property situated within the coastal zone does not currently provide for public access and use, and relocation of the existing navigational aids would not change existing public access restrictions in any way.

Relocation of existing navigational aids would not affect coastal areas suited for water-oriented recreational activities; oceanfront land, and the recreational opportunities along the oceanfront adjacent to LAX; the priority afforded to recreational facilities designed to enhance public opportunities for coastal recreation, nor the ability to increase recreational boating use of the adjacent coastal waters; or upland areas and their relationship to coastal recreation uses.

Article 4 (Marine Environment):

- *§30230 Maintenance and restoration of marine resources;*
- *§30231 Maintenance and restoration of water quality;*
- *§30232 Protection against spills of oil and hazardous substances;*
- *§30233 Diking, filling or dredging of waterways; erosion control;*
- *§30234 Protection of commercial fishing and recreational boating industries*
- *§30234.5 Importance of fishing activities*
- *§30235 Revetments, breakwaters, etc.;*
- *§30236 Waterway modification; mitigation; restrictions;*
- *§30237 Habitat conservation plan; Bolsa Chica;*

The above CCA policies do not apply to the relocation of existing navigational aids based on the fact that the existing and proposed navigation aids are substantially removed from marine resources, would not result in the potential for oil and hazardous substance spills, would not involve revetments/breakwaters, would not involve diking, filling or dredging in coastal zone, would not involve boating or fishing, and would not be located near Bolsa Chica.

To prevent impacts to the coastal zone and coastal waters from erosion and runoff associated with relocating the existing navigational aids, FAA would incorporate BMPs into the construction process for the navigational aids and associated service roads. Measures including BMPs to address potential erosion impacts associated with Project construction are specified in Section 4.7, *Hydrology and Water Quality* of the Final EIR for the LAX Master Plan Improvements.

Article 5 (Land Resources):

- §30241 *Prime agricultural land; maintenance in agricultural production;*
- §30241.5 *Agricultural lands; determination of viability of uses; economic feasibility evaluation;*
- §30242 *Lands suitable for agricultural use; conversion;*
- §36243 *Productivity of soils and timberlands; conversions;*

The above CCA policies do not apply to the relocation of existing navigational aids based on the fact that the relocation of navigation aids would not be near, and would not involve, agricultural or timber lands.

- §30244 *Archaeological or paleontological resources.*

Relocation of the existing navigational aids would not directly or indirectly affect any known archaeological or paleontological resources. According to previous archaeological and paleontological surveys, as discussed in Section 4.9, *Historic/Architectural and Archaeological/Cultural and Paleontological Resources*, of the Final EIR for the LAX Master Plan Improvements, no known resources exist within the coastal zone area of the LAX property. One historic building, a WWII munitions storage bunker, is located within the coastal zone, but the proposed relocation of the existing navigational aids would not affect the building. In the event that previously unidentified archaeological and/or paleontological resources were to be discovered during the relocation and construction efforts, implementation of mitigation measures MM-PA-1 through MM-PA-7 in the Final EIR would reduce impacts to these resources. Therefore, no archaeological or paleontological resources within the coastal zone would be adversely affected.

Article 6 (Development):

- §30250 *Location, existing developed areas.*

The proposed relocation of existing navigation aids would occur within an area devoted to such airport related facilities and, due to the nature of the area and uses, no other coastal developments are nearby. Due to the nature of the project, there is not much, if any, discretion about where to best locate the facilities. The FAA regulations noted above in Section III mandate the placement of navigational aids at runway centerlines to ensure aviation safety; therefore, the facilities cannot be clustered with other such facilities in order promote compatibility within coastal zone.

- *§30251 Scenic and visual qualities.*

The navigational aids proposed to be relocated in conjunction with Alternative D would generally be similar in size and design to the existing facilities that have existing in the dunes for decades, and would continue to exist irrespective of Alternative D. Similar to the existing navigational aids, the relocated navigational aids would not be readily apparent from either Pershing Drive or Vista del Mar. The area of the Los Angeles/El Segundo Dunes in which the existing and proposed navigational aids are located is fenced off with green security fencing to prevent public access. The design of navigational aids is mandated by FAA standards, and due to the strict safety specifications, the aesthetic appearance of the navigational aids cannot be changed in any way.

- *§30252 Maintenance and enhancement of public access*

Relocation of existing navigational aids would not affect public access to the coast. Currently, the portion of LAX property within the coastal zone is not accessible to the public for aviation safety and national security reasons. However, coastal access is provided west of the Los Angeles/El Segundo Dunes, and via existing roads to the north and south of the subject area. The new location for the relocated navigational aids would maintain all existing coastal access routes adjacent to and surrounding LAX.

- *§30253 Development Mandates*

Relocation of existing navigational aids would not occur in areas of high geologic, flood, and fire hazard; would not contribute significantly to erosion, geologic instability, or destruction of the Los Angeles/El Segundo Dunes (as discussed under Article 4 above); and would not pertain to AQMD/ARB requirements or minimizing energy consumption and vehicle miles traveled. The relocated navigational aids would not adversely affect popular visitor destination points for recreational uses in the coastal zone.

- *§30254 Public works facilities.*

Relocation of existing navigational aids is proposed within close proximity, approximately 340 feet to the south of the existing navigational aids for Runway 24L/6R, and as a westerly extension of the existing navigational aids for Runway 24R/6L. The facilities would be designed and constructed to minimize the footprint on the Dunes, and relocation of the navigational aids would be done in compliance with FAA regulations for navigational aid and aviation safety. Relocation of the existing navigational aids would not expand the capacity nor increase the number of arrivals and departures at LAX.

- *§30254.5 Sewage treatment plant development; prohibition on terms and conditions*

Relocation of existing navigational aids would not involve the development of a sewage treatment plant.

- *§30255 Priority of coastal-dependent developments.*

Relocation of existing navigational aids is proposed in compliance with FAA's regulations related to airport design and aviation safety. Navigational aids are not coastal-dependent facilities and would not affect or hinder the priority of other coastal-dependent development in the area. Additionally, no wetlands within the coastal zone would be affected by the proposed navigational aid relocation.

Article 7 (Industrial Development):

- §30260 Expansion or location of industrial development;
- §30261 Use of tanker facilities; liquefied natural gas terminals;
- §30262 Oil and gas development;
- §30263 Refineries or petrochemical facilities;
- §30264 Thermal electric generating plants;
- §30265 Legislative findings and declarations; offshore oil transport and refining; and
- §30265.5 Governor or designee; coordination of activities concerning offshore oil transport and refining; duties.

Relocation of existing navigational aids is not considered industrial development and would not conflict with policies pertaining to the location or expansion of coastal-dependent industrial facilities within their existing sites. The relocation of existing navigational aids would not include the design of tanker facilities, oil and gas development, the construction of new, or expansion of existing refineries or petrochemical facilities, thermal electric generating plants in the coastal zone, offshore oil transportation, or coordination of activities and duties concerning offshore oil transport and refining by the Governor or designee.

B. RELEVANT POLICIES OF THE CALIFORNIA COASTAL ACT

Article 5, Land Resources

§30240 environmentally sensitive habitat areas; adjacent developments

(a) *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

(b) *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Comment and Analysis:

Existing Los Angeles/EI Segundo Dunes Habitat

Los Angeles World Airports (LAWA) owns and manages the 307-acre Los Angeles/EI Segundo Dunes located immediately west of the airport operations area and actively maintains approximately 203 acres of the 307-acre site. Known as the EI Segundo Blue Butterfly Habitat Restoration Area, the 203-acre site is home to the federally-listed EI Segundo blue butterfly and several other sensitive habitat and species and is the largest remaining representation of coastal dune community within Los Angeles.

LAX has two generally designated open areas that make up the affected environment in the Los Angeles/EI Segundo Dunes, and thus the coastal zone:

- (1) The EI Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area) located to the west of the airfield, comprised of approximately 202.8 acres. Four biotic communities are represented: Southern Foredune (135.6 acres), Southern Dune Scrub (24.4 acres), Valley Needlegrass Grassland (17.1 acres), and Developed (25.7 acres).
- (2) Approximately 104.3 acres of non-restructured dunes adjacent to and north of the Habitat Restoration Area, comprised of three biotic communities: Disturbed Dune Scrub/Foredune (74.6 acres), Non-Native Grassland/Ruderal (16.9 acres), and Developed (12.8 acres).

The largest of the open-space areas within the coastal zone is the Los Angeles/EI Segundo Dunes, the largest extant remnant of one of five major sand dune complexes that historically occurred in California south of San Francisco. Within the coastal zone, there are approximately 307 acres of dunes and related landforms, 202.8 acres of which are designated as the Habitat Restoration Area. An additional 104.3 acres of dunes and adjacent landforms lie to the north of the Habitat Restoration Area.

The Habitat Restoration Area is home to the federally listed EI Segundo blue butterfly. LAWA's habitat conservation and restoration efforts were initiated in 1987 and have received national attention. LAWA, in coordination with U.S. Fish and Wildlife and the California Department of Fish and Game, has provided and continues to provide the resources necessary for the habitat conservation and restoration efforts. The Habitat Restoration Area is the largest remaining representation of coastal dune community within Los Angeles. Since its initiation, ecological restoration has extended the distribution of its constituent plant communities to approximately 202.8 acres.

There are 20 sensitive plant species designated by federal or state agencies that were determined to have the potential to be present within the coastal zone. Surveys conducted for sensitive plant species identified three of these species within the coastal zone. Surveys identified 9,051 individuals of Lewis' evening primrose within the Habitat Restoration Area and an additional 300 individuals within the airfield. The EI Segundo duneflower was also present within the Habitat Restoration Area, with an extremely small population of only three individuals. The California spineflower was also located in eight areas within the Habitat Restoration Area; 572 individuals were found. Seventeen sensitive plant species were determined absent within the coastal zone.

There were 34 sensitive wildlife species designated by federal or state agencies that were determined to have the potential to occur within the coastal zone; 24 of these species were identified within the coastal zone. There are 18 sensitive arthropods, 14 sensitive insect species and four sensitive arachnids, all of which were located within the Los Angeles/El Segundo Dunes. The western spadefoot toad was determined present in ephemeral ponds in the south airfield. Two sensitive reptiles, the silvery legless lizard and the San Diego horned lizard, were determined present within the Los Angeles/El Segundo Dunes. Two sensitive bird species, the burrowing owl and the loggerhead shrike, were detected in the Los Angeles/El Segundo Dunes. The only sensitive mammal present in the coastal zone is the San Diego black-tailed jackrabbit, which utilizes the open space area located within the southwestern corner of the airfield.

As mentioned above, six biotic communities have been identified within the coastal zone. The biotic communities and vegetation types found within the coastal zone are discussed in detail below.

Southern Foredune: Southern Foredune plant communities are typically dominated by perennial species with a high proportion of suffrutescent (slightly woody at base) plants up to 30 cm tall. The Southern Foredune community is inhabited by a number of wildlife species, including the federally-listed El Segundo blue butterfly.

Within the study area, 135.6 acres of this community are found within the Habitat Restoration Area west of Pershing Drive. Relatively undisturbed areas (about 40 acres) surrounding the Very High Omni Range Navigation Beacon provide the most representative example of this community. Ecological restoration efforts undertaken between 1987 and 1994 have restored an additional 95.6 acres. The host plant and primary food source for the El Segundo blue butterfly, coast buckwheat, is found in this biotic community.

Southern Dune Scrub: Southern Dune Scrub is a dense coastal scrub community of scattered shrubs, subshrubs, and herbs, generally less than 1 meter in height, often developing considerable cover, and often succulent. Along the coast, Southern Dune Scrub intergrades with the Southern Foredune plant community.

The Los Angeles/El Segundo Dunes contain virtually the only remaining example of this plant community in mainland Southern California. The Southern Dune Scrub community is found only within the Habitat Restoration Area along the steep slope of the backdune and is comprised of 24.4 acres. The host plant and primary food source for the El Segundo blue butterfly, coast buckwheat, is found in this biotic community.

Valley Needlegrass Grassland: The deflation plain east of the backdune consists of loosely consolidated (incipient) sandstone covered to variable depths with aeolian (wind-transported) sand. Many common species of birds and two reptiles are known to utilize this biotic community.

This biotic community has been significantly altered and degraded by development activities. The floral components typically associated with it are now almost completely absent due to extensive grading and paving and the invasion of exotic annual grasses. No vernal pools exist today. The Valley Needlegrass Grassland community occupies 17.1

acres within the Habitat Restoration Area, and is limited to three distinct areas adjacent to and west of Pershing Drive.

Disturbed Dune Scrub/Foredune: This community is made up of 74.6 acres and is located north of the Habitat Restoration Area, south of Waterview Street, west of Pershing Drive, east of Vista del Mar Boulevard, and is bisected by Sandpiper Street. This biotic community is heavily disturbed and is dominated by invasive species that drive out native vegetation. The few coastal dune elements are patchy and include burbush, dunes evening primrose, bush lupine, pink sand verbena, and deerweed. Coast buckwheat is absent from this site.

Non-Native Grassland/Ruderal: Non-Native Grassland/Ruderal areas are those that have been subjected to past disturbance. This biotic community is comprised of 721.8 acres and is heavily fragmented throughout LAX. It includes a portion of the Los Angeles/El Segundo Dunes that was once a residential area, and areas along the northern perimeter of the airport that were also historically residential. This biotic community is also represented between the runways and taxiways on the airfield, which undergoes regular operations maintenance and is routinely mowed.

Developed: Developed areas within the study area occupy 2644.9 acres and include the airfield, terminals, parking, roads, and support facilities.

Direct Affects from Navigational Aids

Under Alternative D, construction of navigational aids and associated service roads would result in impacts to 66,675 square feet (1.53 acres) of state-designated sensitive habitat within the Los Angeles/El Segundo Dunes. The new navigational aid system would include a new ALSF-2 lighting system and would permanently convert 0.25 acres of active El Segundo blue butterfly habitat in the Dunes to concrete to support the navigational lighting system. The proposed ALSF-2 lighting system would decrease the spacing of lights and increase the number of lights used to aid pilots in identifying the airport from 15 to 23. The spacing between each light would decrease from 200 feet to 100 feet. The lights from the ALSF-2 would be directed up at approaching aircraft. The extra lighting would be used during low visibility Santa Ana conditions (strong easterly winds) and at night when planes are approaching LAX from the west. During normal operations only one-half of the lights would be illuminated.

According to the Biological Opinion issued by the United States Fish and Wildlife Service (FWS-OR-1012.5 dated April 20, 2004), it is estimated that a total of two coast buckwheat plants would be directly affected by the installation of the navigational lighting system. The removal and relocation of the two coast buckwheat plants would likely result in the loss of any El Segundo blue butterfly larvae or pupae associated with that particular plant due to elimination of its food source. However, because of the poor quality of El Segundo blue butterfly habitat in the impact area, it is unlikely that these actions would directly impact more than a small number of El Segundo blue butterfly.

Implementation of mitigation measures MM-ET-3, El Segundo Blue Butterfly Conservation: Dust Control, and MM-ET-4, El Segundo Blue Butterfly Conservation: Habitat Restoration, would include protection against dust during construction and the removal and relocation of

the buckwheat plants along with the loss of 0.25 acres of El Segundo blue butterfly habitat. The removal and relocation may have some small adverse effects to the El Segundo blue butterfly population's size and distribution, however these impacts will be minimal due to the poor habitat condition within the impacted area.

According to §4.11, Endangered and Threatened Species of Flora and Fauna in the Final EIR, restoration is planned for currently occupied areas where coast buckwheat densities are low. Sub-area 23 of the Habitat Restoration Area currently contains low densities of coast buckwheat and low numbers of El Segundo blue butterfly and is the proposed location for the restoration of 1.25 acres of sparsely populated El Segundo blue butterfly habitat, consistent with mitigation measure MM-ET-4 in the Final EIR. The improvements are expected to yield increases in butterfly numbers within three years. The restoration efforts would be completed approximately three years prior to the installation of the navigational lighting system. Therefore, the positive effects of the restoration effort are expected to be evident prior to the loss of the 0.25 acres of habitat from the installation of the lighting system. FAA and LAWA would submit a monitoring report after the navigational aid system is in place and during the first subsequent El Segundo blue butterfly flight period to document El Segundo blue butterfly behavior with respect to the lighting system.

The USFWS Biological Opinion finds that the proposed action is not likely to jeopardize the continued existence of El Segundo blue butterfly. The conclusion is based on the 0.25 acres of habitat lost in the El Segundo blue butterfly reserve is of poor quality and would be off set by the restoration of 1.25 acres of high quality habitat in sub-area 23 on the southern area of the Habitat Restoration Area.

In addition to habitat supporting the coast buckwheat and the El Segundo blue butterfly, one sensitive plant species, Lewis's evening primrose, is widely distributed throughout the Habitat Restoration Area of the Los Angeles/El Segundo Dunes. The Lewis' evening primrose is designated by the CDFG as a state sensitive species. Implementation of the proposed navigational aid relocation under Alternative D also would result in impacts to state-designated sensitive habitat that support sensitive arthropods, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl. However, implementation of mitigation measures MM-BC-1, MM-BC-2, MM-BC-3, MM-BC-8, MM-BC-9, and MM-BC-13, as discussed in Section 4.10, *Biotic Communities*, of the Final EIR for the LAX Master Plan Improvements would reduce all direct impacts to these biotic resources within the Los Angeles/El Segundo Dunes and the coastal zone to less than significant levels.

INDIRECT AFFECTS FROM NAVIGATIONAL AIDS

As discussed in the USFWS Biological Opinion, increased light and photo period has been shown to increase the growth and productivity of butterflies and moths; however, the production is typically off set by predation. The increased lighting in the Los Angeles/El Segundo Dunes and Habitat Restoration Area during evening hours may increase the activity period of adult El Segundo blue butterfly. However, the new lighting system is proposed for an area of the El Segundo dune complex that contains very low densities of El Segundo blue butterfly and coast buckwheat. Further, the lights are designed to illuminate the sky rather than the ground. Therefore, the expected increase in ambient light levels of 0.34 foot-candles (*fc*) and changes in navigational aid lighting, with implementation of

Master Plan Commitment LI-3 regarding lighting controls, are not expected to have significant impacts on biotic communities, including sensitive floral and faunal species in the coastal zone.

Given that all potential direct and indirect impacts associated with relocating existing navigational aids in the coastal zone would be mitigated to less than significant levels and completed in cooperation with CDFG and USFWS, the proposed project is consistent to the maximum extent practicable with the California Coastal Management Program.

Public Comment:

Numerous public comments were received regarding direct and indirect impacts to sensitive habitat and species within the Los Angeles/El Segundo Dunes and the coastal zone. Public comments regarding direct impacts to the coastal zone primarily raised concerns and clarifications about what development is planned in the Dunes area west of LAX. The only development planned in the Dunes is the relocation of existing navigational aids and associated service roads for Runway 24L/6R. No hotels or golf course developments in the Dunes are proposed by, or allowed under, the LAX Master Plan.

Associated with relocating the existing navigational aids, several comments were received regarding impacts to coast buckwheat and the El Segundo blue butterfly in the Los Angeles/El Segundo Dunes and Habitat Restoration Area. Comments regarding the adequacy of mitigation measure MM-ET-4 and the geographic distribution of the navigational aids and service roads questioned the ability to successfully minimize impacts to 1.53 acres in the Dunes. LAWA's ongoing and expanded restoration enhancement and maintenance efforts would successfully avoid and/or mitigate impacts to the coast buckwheat and El Segundo blue butterfly, as indicated in the Final EIR and in the USFWS Biological Opinion.

Comments also were received regarding indirect impacts to sensitive habitat and species. Indirect impacts of concern to commentors included impacts associated with light emissions, noise, air quality, and viability of mitigation measures. Issues of concern related to light emissions included the spatial distribution and intensity of light emission increases throughout the Dunes and the implications on increased predation and/or competition among species. No evidence has shown increased predation or competition, or detrimental effects associated with increased illumination, among the species in the Dunes adjacent to LAX.

Comments received regarding noise impacts on species such as the loggerhead shrike, western spadefoot toad, San Diego horned lizard, silvery legless lizard, burrowing owl, and black-tailed jackrabbit dealt with concerns about physical, nesting and breeding impacts resulting from excess noise levels from overhead aircraft. No evidence shows that species are suffering from noise impacts in the coastal zone surrounding LAX. Species that are affected by excessive noise levels are not located within areas where L_{\max} levels exceed the individual species' tolerance levels. The only bird species found to be located within the Dunes is the loggerhead shrike, and noise levels have not affected the nesting and breeding productivity of this bird.

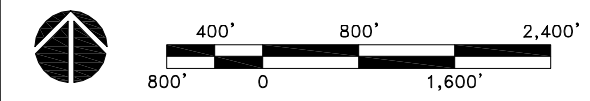
Comments received regarding air quality impacts to habitat within the Dunes demonstrated concern over the deposition of soot and particles from cars and aircraft. As discussed in Section 4.10, *Biotic Communities* of the Final EIR, implementation of Alternative D would not result in potentially significant air quality impacts to biotic communities due to the prevailing wind conditions and the location of peak concentrations of air pollutants within the eastern portion of the airport.

Several comments were received regarding the adequacy of mitigation measures included in the Final EIR for sensitive habitat and species at LAX. Mitigation measures of concern dealt with western spadefoot toad habitat, loss of the geographic range for the western spadefoot toad species, enhancing the Dunes for loggerhead shrike and its affect on the Jerusalem cricket, enhancing habitat north of the Habitat Restoration Area for the black-tailed jackrabbit, mitigation for the Lewis' evening primrose, and the timing of mitigation for the El Segundo blue butterfly. Mitigation measures were developed in consultation with the CDFG and the USFWS. Implementation of these agreed-upon mitigation measures would reduce impacts to these sensitive habitat and species, located within the coastal zone, to less than significant levels.

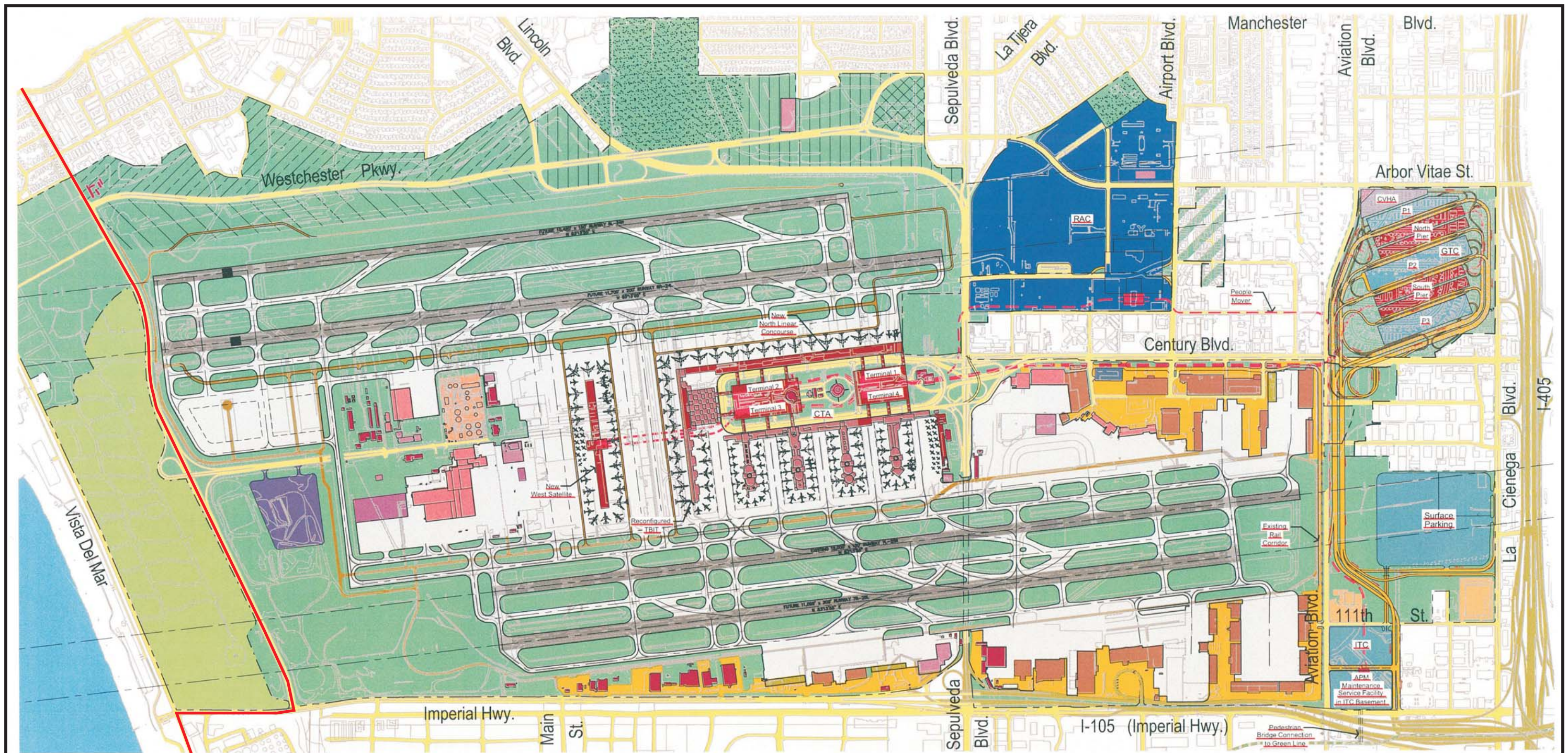


LEGEND

	Airfield/Airport Open Space		Cargo Buildings		Long-Term Public Parking
	El Segundo Blue Butterfly Habitat Restoration Area		Maintenance Facilities		Short-Term Public Parking
	Runways		Ancillary Facilities		Rental Car Facility
	Taxiways/Aircraft Aprons		Fuel Farm		Golf Course/Open Space/Recreation
	Roadways		Commercial Vehicle Holding Area		Residential ANMP Acquisition Area
	Terminal Buildings		Employee Parking		Light Rail Transit
			Collateral Development		Navigational Aids



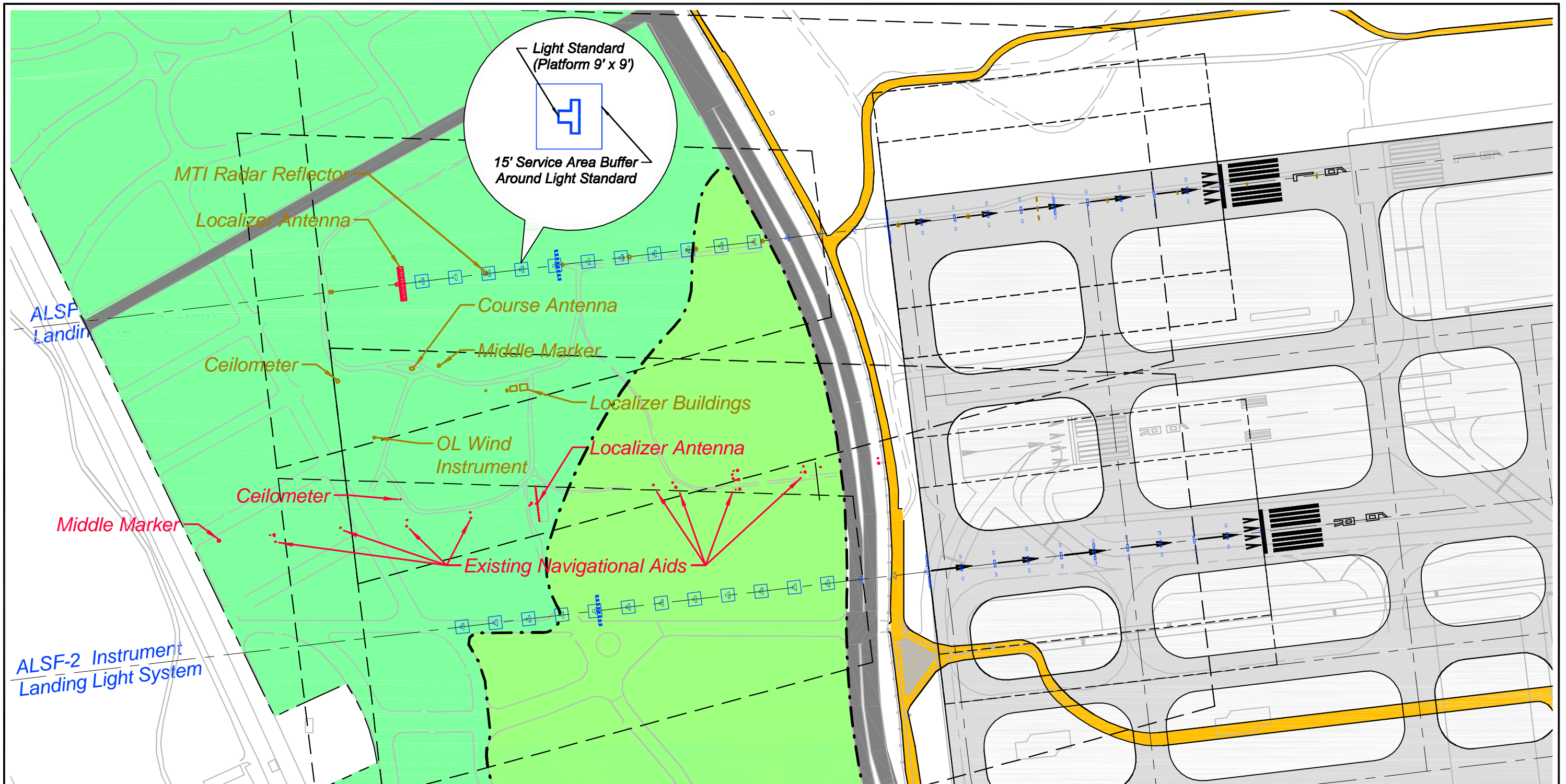
Prepared by: Landrum & Brown, March 2004



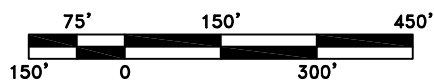
Legend

- | | | | | |
|---|--|--|--|---|
| <ul style="list-style-type: none"> --- Airport Property Boundary Line El Segundo Blue Butterfly Habitat Restoration Area Airfield/Airport Open Space Runways Taxiways/Aircraft Aprons Existing Terminal Buildings Existing Cargo Building Existing Maintenance Facility | <ul style="list-style-type: none"> Existing Light Rail Transit Existing Collateral Development Existing Ancillary Facility Existing Roadways Existing Commercial Use Existing Off-Airport Use Existing Employee Parking Existing Fuel Farm Proposed Terminals | <ul style="list-style-type: none"> Existing MTA Right-of-Way Proposed Cargo Building Proposed Maintenance Facility Proposed Ancillary Facility Proposed Airside Service Roads Proposed Public Parking Proposed Commercial Vehicle Staging Area Proposed Employee Parking Airport Landside | <ul style="list-style-type: none"> Proposed People Mover Proposed Rental Car Facility High Density Mixed Use (Hotel, Office, Retail) Medium Density Commercial (Hotel, Office, Retail) R/D Business Park Airport Related Golf Course/Open Space/Recreation ANMP Acquisition Area | <ul style="list-style-type: none"> Coastal Zone Boundary |
|---|--|--|--|---|

Prepared by: Landrum & Brown, April 2003



LEGEND



	Habitat Restoration Area Boundary		Proposed Navigational Aids
	Sand Dunes		Existing Navigational Aids to be removed
	El Segundo Blue Butterfly Habitat Restoration Area		Existing Navigational Aids to remain
	Existing Roadways		Airport Landside

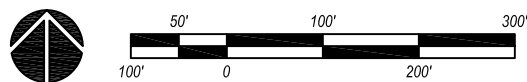
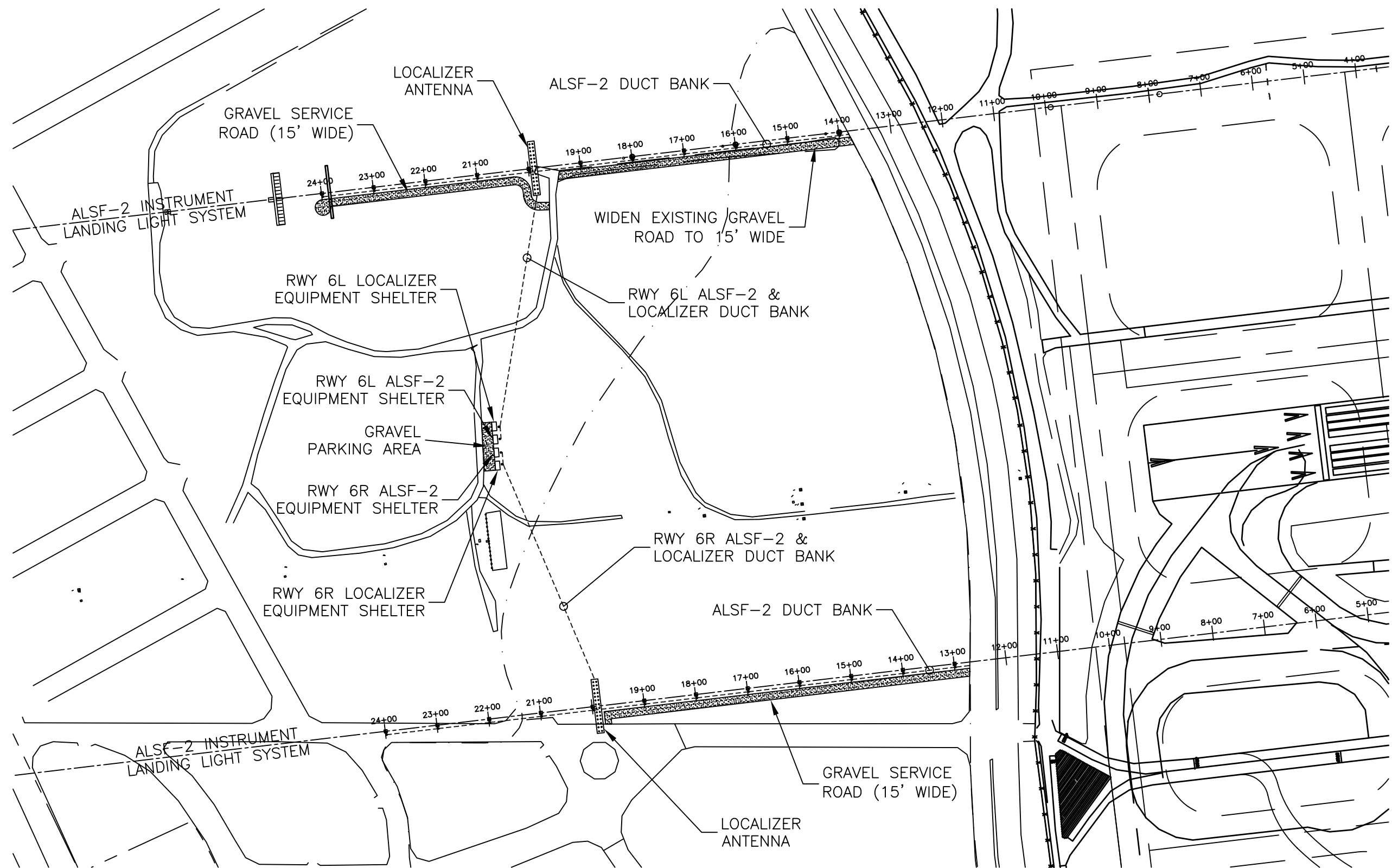
Prepared by: Landrum & Brown, February 2004



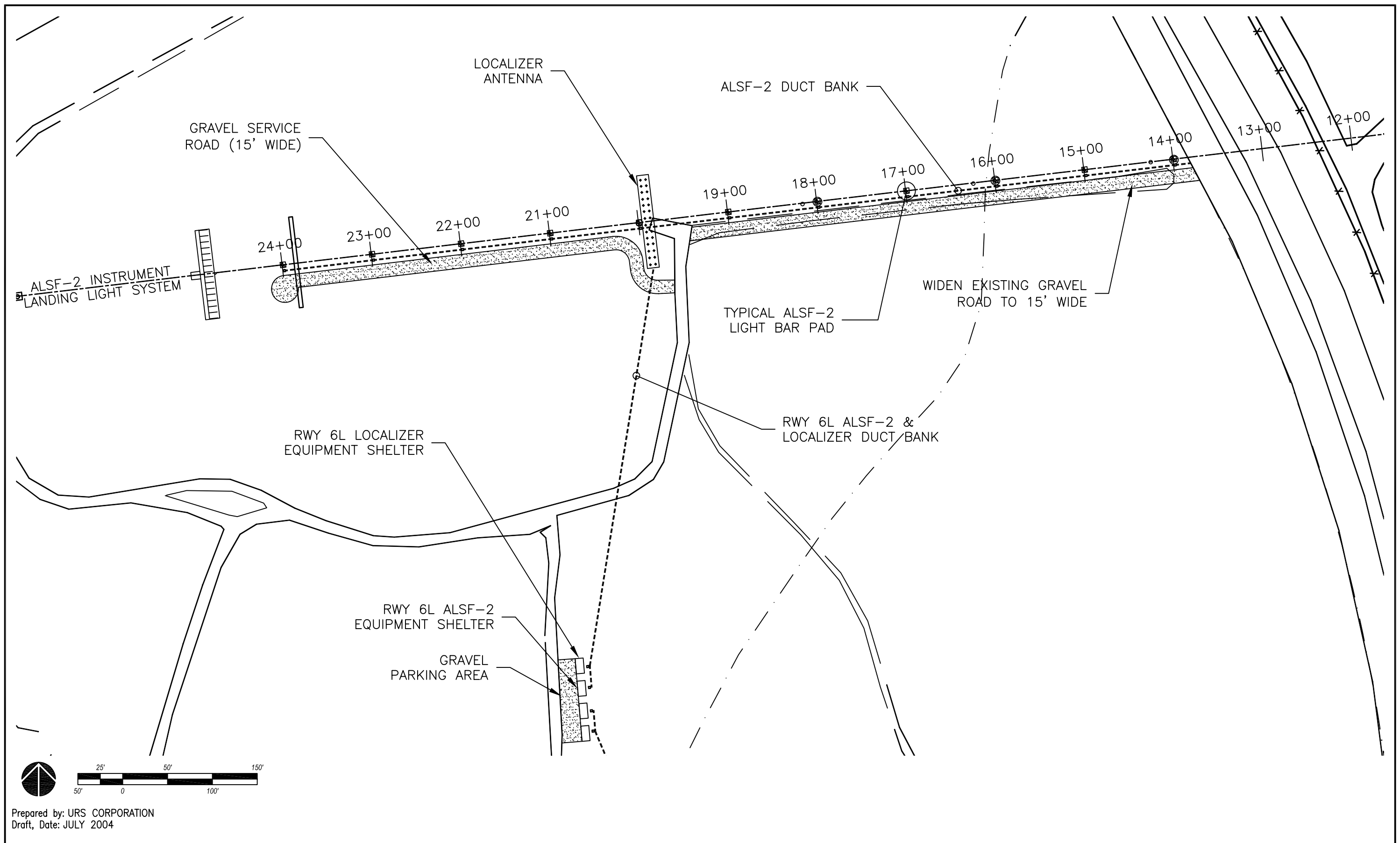
LAX Master Plan

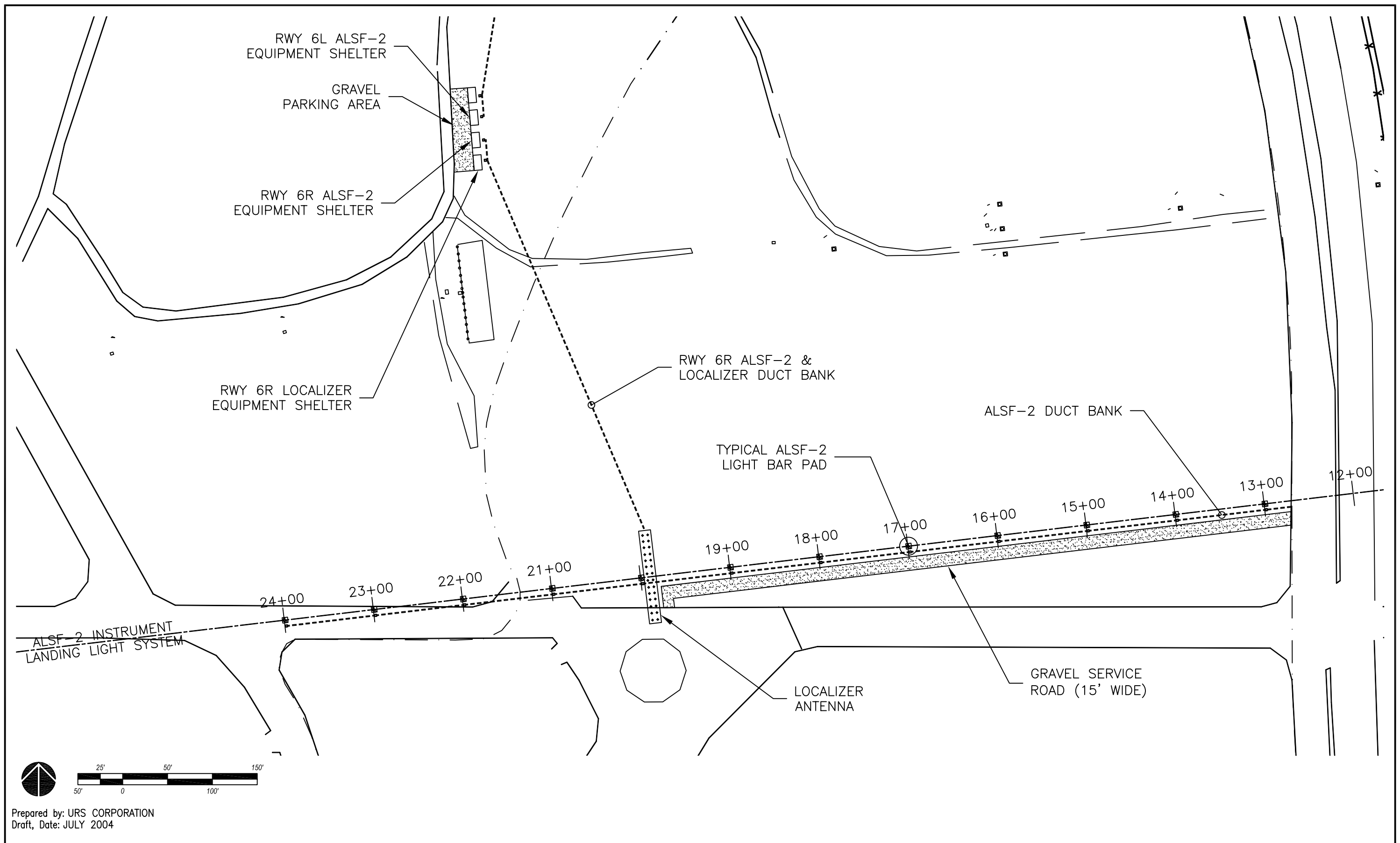
**Approach Lighting System (Flashing) Towers
in the Los Angeles/El Segundo Dunes**

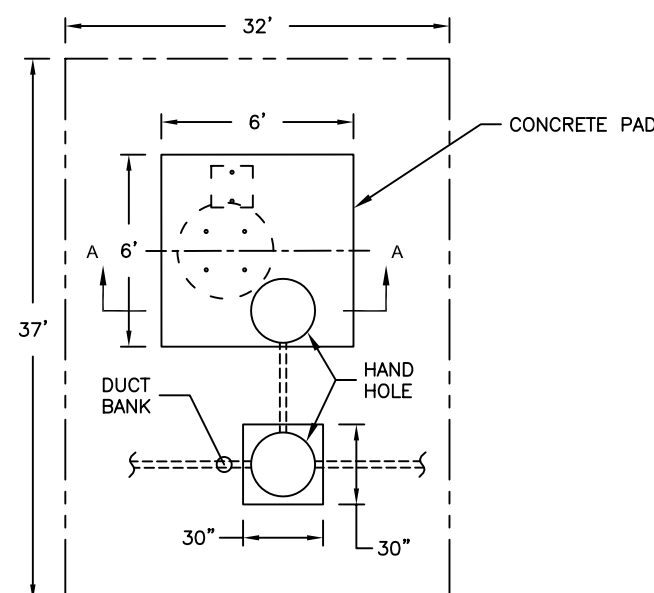
Figure
4



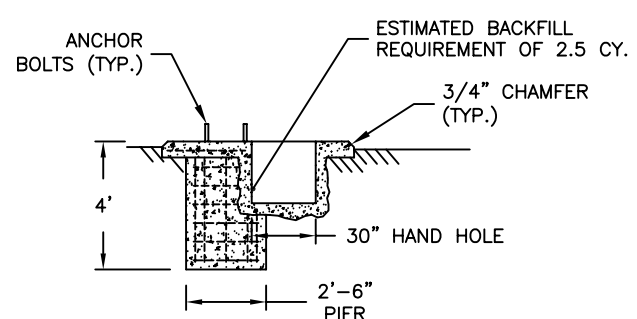
Prepared by: URS CORPORATION
 Draft, Date: JULY 2004



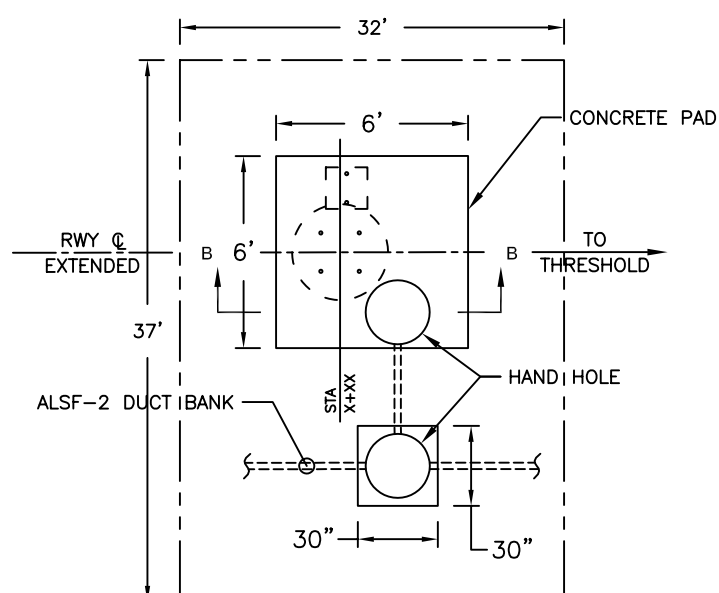




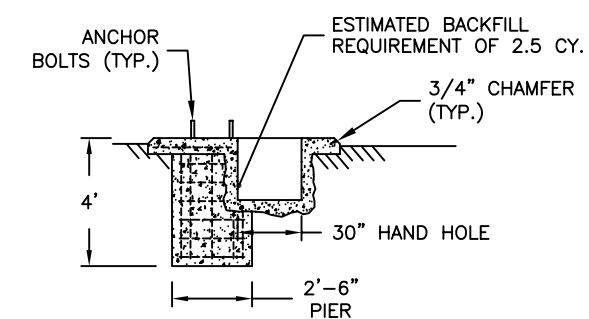
TYPICAL APPROACH LIGHTING
FOUNDATION SYSTEM - PLAN



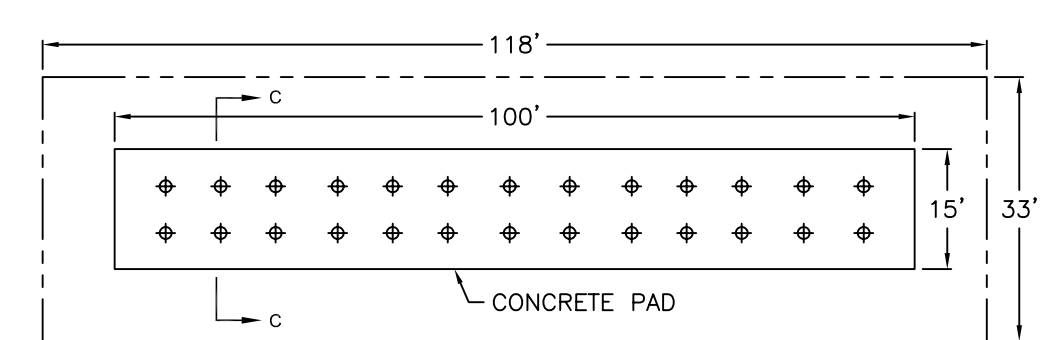
TYPICAL APPROACH LIGHTING
FOUNDATION SYSTEM - SECTION A



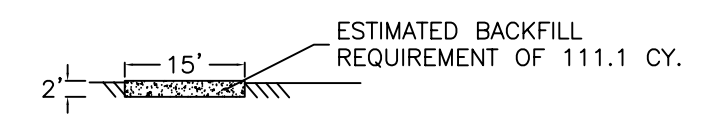
TYPICAL ALSF-2
LIGHT BAR PAD - PLAN



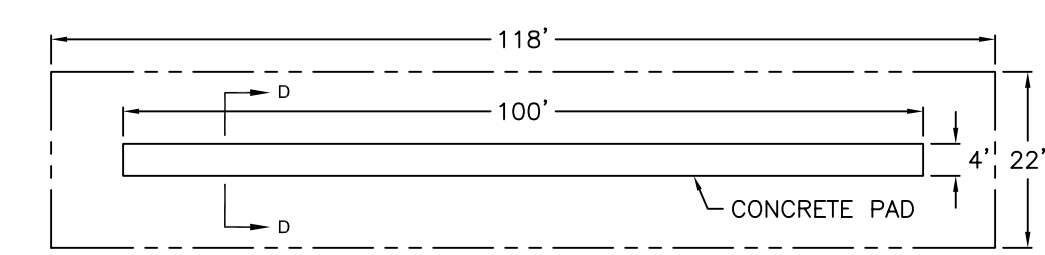
TYPICAL ALSF-2
LIGHT BAR PAD - SECTION B



TYPICAL LOCALIZER
PAD - PLAN



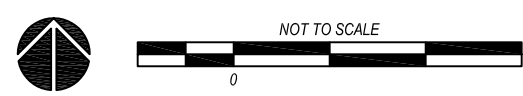
TYPICAL LOCALIZER
PAD - SECTION C



TYPICAL MTI RADAR
REFLECTOR PAD - PLAN



TYPICAL MTI RADAR
REFLECTOR PAD - SECTION D



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Draft, Date: JULY 2004

